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TOENJES

PRINCIPLES OF ANIMAL UNDERSTANDING

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PRINCIPLES OF
ANIMAL UNDERSTANDING

*A Constructive Essay on the Intercourse
in the Animal World*

BY
HERMANN TOENJES

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INTRODUCTION.

The title, heading this work, is to signify the functions which imply the principles by which the animal kingdom is enabled to afford a perfect mutual understanding in the same manner as language serves humanity. It seems not to be proper and available to name the subject "animal language," although these functions, as it will be demonstrated hereafter, renders to the animal the same service as language does to man.

It is a prevailing opinion among the public that animals are not endowed with the proper means in order to express and demonstrate their feelings and motives to each other and establish an understanding to benefit their personal welfare. It is, furthermore, erroneous to deny the animal world emotional and spiritual faculties, because they are the very fundamental impulsive principles, which impel the individual to adapt and modify the organic structure for the utility of demonstration in order to express and reveal themselves to the outer world through certain modified actions in a systematical manner.

But we must bear in mind that the emotional and spiritual principles of all organic beings are essentially alike; but their nature of intensity is related to the rank and order to which that individual belongs in the organic world. The intensity of impulse of affection grows gradually and equally with the progress of organic evolution; that is, with the beginning of the rudest form of organic life, through all phases, up to man. Of course, spirituality is attributed more to the higher orders in the organic kingdom, especially to man; though the pathological principles are attributed to every organic being, because they constitute essentially the fundamental basis of the psychological constitution.

It must be pointed out here that the emotional principles, representing the principles of individuality, imply the impulse to reveal and express themselves and consequently induce the intellect to exert available modes of demonstration on the physical plan, through certain modified forms, such as gestures, poses and

sounds. Hence, though every organic being possesses these psychological principles, it must have, according to its relation to the species, its own certain form of demonstrative expression in order to communicate with its fellow-being, as man does through his rational language.

It is furthermore a prevailing opinion among the public, that a perfect understanding can only be acquired on the basis of a systematical language as man's; and though the animal kingdom is not endowed with those organic faculties to that extent as man, in order to construct a rational language, it is concluded that the primitive forms of demonstration of the animal would not deliberate a result of a perfect understanding. These forms were only an imperfect medium for intercommunication; especially the primitive individuals being in the first stages of organic life, as, for instance, protozoa, vermes, molusca and similar organic beings. And though among those lower individuals exists an harmonious understanding, which is demonstrated by the results of their mutual welfare, there is sufficient proof that these classes of organic life do possess very perfect means for the purpose of personal intercourse, although these individuals are anatomically not adapted to modify any form of demonstration, to communicate with each other. Now, though here the forms of communication dependent on the physiological basis are excluded, these classes of organic beings are naturally impelled to modify forms of communication dependent on the psychological ground.

Hence, concluding from this, I shall have to state that the manifestation of animal intercommunication and understanding essentially depends on the ground of psychological intercourse; that is, transmission of feelings and motives or thought transference; and that the forms of communication, dependent on the physiological ground, are coming merely in the secondary place, such as gestures and sound-producing.

It will be the main object of this work to demonstrate this. Moreover, though the whole manifestation of animal intercourse has in its modus not the least resemblance with the systematical human language, it would be improper to title the subject, "animal language." But though nevertheless these manifestations in the animal world objectively effect a rational understanding, the only available term to be adopted could therefore be animal under-

standing; and the ground from which these forms of understanding originate may be termed, collectively, the principles of animal understanding, because they imply at the same time the faculty of demonstration and the power of comprehension.

Hence, this term implies logically the analyzation of the constitutional ground of these principles, and therefore, will this be the tendency and scope of this work, while the forms and modes of gestures and sound-producing will be treated negatively, to a certain extent, in so far as it is necessary to perfect the elucidation of the subject. This is, for certain reasons—firstly, it would be too exhaustive, and secondly, the forms and modes of gestures and sound-producing are too familiar to most every one, that they need an extra illustration in this work. Therefore, I have to state here in advance to the kind reader that the plan of this work is mostly based on the psychological ground and treated on from the view of the transcendental standpoint.

PART I.

PRINCIPLES OF ANIMAL UNDERSTANDING.

CHAPTER I.

THE FUNDAMENTAL BASIS OF INTERCOURSE.

The constitution of an organic being consists essentially of two different parts: the physical and the psychological. The physical part contains the principles of sensation and the various forms of dynamic forces and plastical energies. Every form of energy and principle of motion is tending to exert expedient instrumentality of power and sense. The psychological part involves the principles of the soul, their nature being termed emotion and mentality.

Hence, soul and mentality constitute the transcendental entity of the organic being. From their center are emerging the affects, known as love, hatred and the feelings of pain and pleasure. The psychological constitution of the organic being is furthermore adaptable and susceptible to two different pathological tendencies, which are objectively diametrical to each other; one is the sympathetic and represents benevolence and love; the other is the anti-pathetical, and represents selfishness and hatred.

In compliance with natural law, that is, the spontaneous and absolute evolution of life and the innate transcendental principles, the organic being is brought into its individual existence. This process is termed individualization. Moreover, simultaneously with the first step into individual existence are beginning the primeval states of feelings and intellectual manifestations, postulated fundamentally on the predominating feelings of pleasure to exist, that is, the pleasant feeling implying the desire to maintain existence.

Furthermore, with the coming into organic existence, the intellect (the soul) of the being must simultaneously manifest itself in correlation with the linear progression of physical development, also a progression of comprehension and objectivity. This must naturally increase the intensity of the want and pleasant feeling to maintain the existence of individuality.

Simultaneously, when the intellect exerts its individuality, are also the powers of sense and the innate visuality (postulate of sight) becoming developed. The synthetical expansion of innate visuality and intellectual objectivity and also emotion constitute the wider range of transcendental individuality of the organic being. The impulse to expand and maintain individuality may be termed the tendency of individualization.

By the power of innate visuality, the organic being perceives and registers from the very beginning of its origin the figurative outlines of all objects it is coming in contact with. By this process consciousness and memory are becoming synthetically constructed and expanded; this is again equally an expansion of transcendental individuality.

Moreover, though from the transcendental view all organic beings are pathetically related to each other, they are more or less capable to perceive introspectively the visual objects registered in each other's transcendental constitution, respectively, the sub-consciousness.

Furthermore, though the intensity of the individualizing impulse characterizes the pathological disposition of the organic being, whether the tendency is too extreme or selfish and anti-pathetical, or the tendency is of little degree impulsive, respectively, self-sufficient and sympathetical, one individual will perceive, according to the above illustrated faculties, transcendently (visually and pathetically), the characteristic propensities or affects of the other's psychological constitution. In other words, the one individual will perceive introspectively what the other has in mind, and will also feel pathetically the prevailing affects of the correspondent, whether they are pro or con—respectively, benevolent or hostile.

Now, in the competition and struggle for life, where every individual is pursuing after its own individual welfare, collisions and conflicts will take place wherever space and liberty are narrow and restricted. Consequently, it will follow that in these manifestations one individual will be disadvantaged by another, which is by certain superior endowments more capable to seize the desired object.

Hence, though all organic beings, and especially those individuals of the lowest orders, are endowed with those previously

classified psychological faculties, that is, firstly: the pathological susceptibility of the individualizing impulse of another being; and, secondly, the introspective visuality to perceive the projected ideas, respectively, the figurative thought form of the opponent, a thus such disadvantaged individual will perceive transcendently the objective individualistic impulse of the competitor, respectively, thought and tendency pending in its mind.

Now, according to its own impulsive individualistic tendency, a thus prejudiced individual must feel unpleasant, because the impulse of its opponent objectively tends to check its own impulse of individualization and efforts to maintain existence. Logically, its pathological disposition will gradually convert into a hateful, that is, into an anti-pathetical tendency, culminating in hatred and selfishness.

Hence, on the other hand, if the individualizing impulse of the co-respondent individual is not so intensive, that is, less selfish and manifesting a more benevolent tendency, the other individual will subjectively be induced by the feelings of pathological intercourse to meet this benevolent tendency with some affection, because it is easily subjected to its own impulse of pleasant feeling; and as, furthermore, there are no selfishness and extreme individualistic efforts manifested which would stimulate in turn selfish reflection.

Now, upon this pathological and intellectual intercourse are based essentially the animals' mutual understanding and their more or less simple modes of demonstrative expression, according to their standing in organic order.

The perceptibility of feeling the pathological disposition, respectively, the character of nativity of the co-responding individual by distance is termed telepathy. Such telepathetical manifestations have been frequently exhibited and observed among sensitive domestic animals. It is a known fact that dogs often manifest an intense aversion toward certain persons, known to be extremely selfish and antagonistic; hence, on the other hand, the same animal will exhibit strong sympathy toward persons of refined and benevolent disposition. These manifestations are prevailing frequently throughout the animal kingdom, and especially among individuals of related organic order.

Facts relating to this particular feature will be more plainly illustrated in succeeding chapters.

CHAPTER II.

INSTINCT AND ITS RELATION TO THE SUBJECT.

Though the pathological faculties in co-operation with the "intellect," termed in the animal kingdom instinct, constitute the essential basis of demonstrative expression and mutual understanding, it is necessary to give here preliminarily a brief delineation of this intellectual disposition of the animal, which generally is called instinct, and its relation to the subject.

However, it is an important fact that the grade of intelligence designates the fate of individualization and its welfare. The specific form of intellect with which the animal is endowed manifests itself in a more subjective phase, that is, easily induced by the predominating (original) motive of individualization, respectively, the determining idea to maintain existence.

This very motive (original idea) implies the rational ability to select and determinate teleologically all objects and forms which are available and beneficial for the construction of individuality, physically and psychologically, in order to maintain personal welfare.

The primitive organic being executes subjectively that which this fundamental and original idea (motive) intends to do; its fate is postulated upon this very idea. The structure of that primitive organic being is framed by the intellectual efforts of this reasoning original idea, which manifests itself explicitly by reasoning from the feeling of pleasure and determining impulse of individualization.

This is merely an intellectual manifestation contrary to those of the higher class of vertebrates, especially, man. They are reasoning from an empirical idea, originated by experience, which, when exerted, is termed deduction and speculation, manifested more or less by mental skill, according to the cerebral organization of the being.

Now, organic beings of the lower ranks are not endowed with the power of speculative faculties, which distinguishes these two classes of organic life. The simplicity of their structure involves, naturally, an equal simplicity of intellectual faculties and reasoning transactions from the original idea, the motive of individualization. But from this state of organic life, ascending up to the higher, this intellectual faculty, termed instinct, is becoming

gradually exerted in linear progression with the organic evolution to the utmost expedience by the individual itself, till it reaches the climax of sagacity and skill and is converted into an objective speculative intelligence.

But speculative and reasoning faculties, analogous to man, are absent in the animal, and especially in the low orders. This eclectic power has been acquired by man through the process of mental and organic evolution in compliance with the determining moral principles of life. Hence, due to these superlative powers, man has swiftly ascended upward to the supremest state of individual life.

Yet man's social standing requires moral and economic exertion, in order to meet principles of the written and unwritten laws of culture and civilization, which pulsate the very heart of sound society, as well as the heart of the family, where no member will remain untouched. Therefore, man has developed and succeeded in the creation of his language and methods of understanding adequate forms, in order to demonstrate and express with grace his feelings and desires.

But these causal principles, which have placed man as master throughout the organic kingdom, these very faculties, the results of his intellectual achievements, through the speculative and reasoning powers, have removed him individually from the center of his innate pathological life. These faculties have induced him to neglect the principles of intuition and voices of life, collectively called instinct.

Although the principles of instinctive being are still dominating in man, although in a passive way, yet they are not competent enough to call the attention of the positive mind to their presence; because, the mind indulges objectively too much in the external world of gross sensation and mental activity. Consequently, man is induced to think that these secondary forms of intellect (intuitive intellect) are not worthy to be exerted; consequently, he ignores the passive demonstration of instinct.

Now, here we arrive at the point of the essential differentiation of the two phases of intellect, which divide morally and intellectually humanity from the animal kingdom. The remarkable dividing line begins where the manifestation of positive abstraction and deduction sets in. Then as the human mind

objectively indulges above this line in the external sphere of sensation and ideals, the ideal sphere of forms and abstract ideas, so the animal indulges intellectually, respectively, intuitively, beneath this line, in such ideals which are only indulged by the idea of individualization; that is, things absolutely necessary for life, to maintain existence, such as food, generation and comfort.

Subsequently, according to the small number of ideal objects, representing only life's necessities, the introspective periphery, that is, the subconsciousness of the animal, is limited to a narrow range; but logical to this, the animal listens more obediently and subjectively to the innate voice of life, respectively, the principles of sound individualization. And, therefore, is the animal more capable than man, in spite of his powerful cerebral organization, to shape its existence as pleasant as possible.

It is this very subjectivity to the innate principles which enables the animal to be so susceptible to all these prevailing intercurrent pathological and intuitive manifestations and adopt methods in order to establish a modus of intercommunication which is from their standpoint available and sufficient in the same degree as the demonstrative expressions of man.

A more definite illustration of instinct and relation to the subject will follow in the succeeding chapters.

CHAPTER III.

THE BASIS OF THOUGHT TRANSFERENCE.

The telepathetical manifestation by which feelings and motives are transmitted from one individual to the other may be termed thought transference. This form introduced here may probably meet with scepticism, because it is a prevailing idea that an animal is not able to think and therefore has no thoughts.

But we must bear in mind that an animal is also endowed with the same intellectual and pathological faculties as man; it is here the quality of power which differentiates man and animal. An animal must logically also be conscious of its own individual existence, that is, self-consciousness; this is one idea. To maintain existence is the succeeding second idea; the selection of the proper object, which is required for its existence, is the succeed-

ing third idea. By this process a primary form of an association of ideas is constructed.

The manifestation of innate spectation, that is, the introspective viewing of the contents of ideas (figurative ideal forms), reasoning from one form to the other, is the primary process of thinking; in other words, this innate introspective transaction, where every ideal form represents a spectrum to the scoping intellect, that is, the transcendental being, constitutes the basis of thoughts, and the synthetical combination of thoughts constructs the basis of memory.

Now, as there can be no intellect without the postulates of visuality (sight), that is, the introspective faculty of sight, it is natural that an organic being, even if of the lowest order of organic life, is able to perceive and record all forms of objects required for the existence, and store them up ideal, figuratively, in the innate introspective periphery of the transcendental constitution.

Thus illustrated psychological manifestations will demonstrate the relationship of the intellect (the essential being of the soul) of all organic beings. The seemingly differentiation consists only in the efforts and objectivity of transactions.

Man's anatomical and psychological constitution implies all phases of organic life, back through the animal kingdom, and down where the spontaneous origination of life is beginning. It is here where the first manifestations of the intellect (yet instinct) have their origination. The intellectual individualization of the transcendental entity of the individual runs like an endless chain, ascending through the progressive stages of organic evolution, till this movement culminates in the development of humanity. The transcendental individuality, respectively, the soul, of man roots like a tree in the primitive stages of organic life. Its trunk is exhibited in the animal kingdom, and finally its crown culminates in man's intelligence, sending out its branches and twigs beyond the start-line of speculation into the world of science and morality.

But still, instinctive ideas, ascending from the basis of intellect like air-bubbles ascending from the bottom of the well to the surface of the water, are coming up to the surface of the intellect, that is, the sensible and conscious state, facing the external world

of sensation, in order to induct the day of superconsciousness (positive mind), the directions of its individual welfare—the inner voice, as it may be termed.

Now, widely different to this stands intellectually the animal kingdom. The animal, in correlation to its limited number of personal necessities, is naturally not to that extent engaged in objective mental transactions as man. Its mental powers are not to that extent positive; consequently, their susceptibility is more adapted to spontaneous inductions of instinctive ideas, coming from the transcendental center within. This is the reason that animals subject with ease to the laws of nature.

Many a naturalist and psychologist will admit and corroborate that the so-called instinct in many respects excels the intellectual manifestations of the so much admired human intelligence. The intellectual manifestations of the animal are induced and inducted by the original idea or spontaneous motive of individualization, which practically provides for the welfare and sound individuality. Contrary to this acts man; he is constantly induced and influenced by the abstract ideas originating from the motives of worldly happiness and the principles of society, respectively, the laws of man. Man's mentality, objectively and extremely engaged in the vortex of speculation, is therefore not susceptible to the spontaneous induction of his instinctive ideas; hence he is no more becoming aware of his innate intellectual manifestation, which would result very often for him in a better welfare.

It has often been pronounced and it is also a prevailing opinion that animals perform their actions unconsciously and without reflection. This is, of course, an erroneous conception and also a gross contradiction. Many persons are thus under the impression of the empirical idea that consciousness is only owing to them. They do not comprehend that consciousness is a phase of intellect, subject to analyzation, as well as it is synthetically constructed by ideas and power of reflexivity. The question here is: Conscious of what? And how many objects (figurative thought forms) the individual is conscious of.

We must bear in mind that consciousness is a synthetical ideal structure, composed of many ideas, respectively, figurative thought forms, which are postulated upon the very original idea, that is, the conception of the being of itself or self-consciousness—the

idea, containing visually the figurative outline of itself (the being). An association of more ideal forms (ideas), accumulated in a synthetical order, construct progressively the range of consciousness.

On the other hand, if we could abstract every idea, respectively, annihilate it, from the range of consciousness, one by one, in the same order as they are synthetically composed, we would through this process of analyzation logically arrive at the postulating original idea—the idea or motive of individualization—that is, the state of the origination of the being.

But now, if an organic being in the primitivest state of life is only conscious of the idea of individualization (of itself) and conscious of the idea to maintain existence, is this not also a consciousness, although of a very dim form? Now, again, though the intellect implies the postulates of visuality, that is, the introspective faculty, the reflectibility of ideal forms, the intellect or the transcendental entity (soul) must be conscious of these ideal contents or the figurative forms of ideas.

Hence, the determining efforts of the vital forces (laws of life) constructing spontaneously the anatomical constitution, require for this synthetical process objects of supply (food); this will excite the intellect to reflect upon. Consequently, the intellect (soul) must, according to the determining motive or individualizing idea, become conscious of these manifestations. These vital and dynamic forces, growing the body, act independently from the individualized intellect (soul). The perpetuality of growth will constantly supply the transcendental entity (intellect) with new ideal forms, to register and store them up in the introspective periphery, that is, the sub-consciousness.

Though the transactions of the vital and dynamic forces which construct the body are independent from the transcendental being, the intellect remains generally in its subjective and passive state. This refers to individuals belonging to lower orders of the animal kingdom. But, ascending to the higher classes of organic beings, where the intensity of the individualizing motive, the idea to maintain existence will naturally also intensify the pleasant feeling of maintaining the welfare of individuality. This will cause spontaneously the intellect to exert reflexivity and further exertion; that is, to increase susceptibility and comprehension.

In animals of the higher classes of organic life, as the vertebrata, where the brain faculties are more developed, the reflexivity and the susceptibility are becoming more expanded in power of conception. That is to say, that the manifestation of vital powers and plastical energies, growth of the body, food and the spontaneous principles of generation will create similar ideas, respectively, figurative thought forms within the introspective periphery; and, according to the intensity of this vital manifestation, thus created ideas are becoming equally intensified emotionally in their motivation; because every idea contributes a part to the individual existence—an increase of individuality, which is the emotional desire of the transcendental entity (the soul), respectively, the “ego.”

Now, though animals of the vertebrate order exhibit more positive brain faculties in relation to their specie, and as these faculties are based upon the postulates of sensation (external senses), the mind is yet a more objective-positive phase of intellect, put in a condition of dual (double) efficiency.

The mind of the higher animal, representing and manifesting a more positive super-consciousness, perceives the impressions from the external world through the senses, and also at the same time the inductive impression from the instinctive ideas from within, the transcendental center. The mind of such an animal is becoming simultaneously conscious of impressions from both directions, from within and from the outside.

The mind exhibits in this state of dual perceptibility merely a double-phased consciousness; one form, facing the exterior world, dealing with sensation, may be termed the positive or super-consciousness; the other form, facing inward to the innate world, the center of transcendental individuality, may be termed the passive consciousness or sub-consciousness.

Now, as I have pointed out before, the more the mind indulges in objective speculations (as man), the less is the mind susceptible and less conscious of the innate (transcendental) manifestations; on the other hand, the less the mind is engaged in mental activity, the more he is susceptible and conscious of the innate transcendental movements. Hence, an animal, even of higher order, is, according to the lacking of positive speculative mental

faculties, naturally susceptible and conscious of impressions from within; its mind, though in a more passive state, subjects easily to the innate vital principles, directed by the motivity of the individualizing idea, to effect the progress of individuality.

Moreover, this determining original idea of individualization, which induces the mind to execute transactions for the benefit of personal welfare, exhibits thereby a remarkable rationality to select and acquire objects which are available for the existence. Hence, the mind perceives fully the systematical directive induction from within, that is, the transcendental ego; consequently, the mind, that is, the positive intellectual phase of the transcendental ego (soul), dwelling merely in the exterior world of sensation, acts according to the inducted rational motives coming from within in order to execute the principles dictated by the soul, respectively, transcendental ego.

We have always an opportunity to observe how some animals exhibit very rational transactions; all pregnant female animals will shortly, before this serious affair takes place, prepare for comfort and provide for the welfare of the offspring. They are never thought to do so. Another example of instinctive rationality in compliance with natural law: A wounded dog will never leave the bandage, applied by his master in his opinion for the best, on the sore place, and he endeavors till he has succeeded to pull the bandage off, and then retires to a silent place, licking the wound, till it is repaired by the vital principles of its own constitution, respectively, the laws of life. On the other hand, the mentally active man is becoming quickly alarmed when sickness sets in; logically, he works objectively against the innate providing vital principles or laws of life, with the aid of poisonous drugs and irritating stimulants.

Instinctive rationality is furthermore exhibited by animals, who are instinctively inducted in the rational selection of food. Animals, living on vegetable food, will always distinguish the poisonous from the non-poisonous, and will select food which is most adaptable for their physical welfare.

There are many similar cases, but it would require volumes to illustrate all these various forms and cases of such instinctive rational manifestation.

CHAPTER IV.

EMOTION AND ITS RELATION TO THE SUBJECT.

Though emotion manifests in the transactions of inter-communication among animals a principal factor, it is available to render this point a brief elucidation, so far as it is related to the subject.

It must be understood that emotion is also a form of life, like others, subject to expansion and intensity in equal synthetical progression with the transcendental faculties of others. This relation implies the tendency that emotion has been originated simultaneously with intellect from the same source, and in parallel evolution with the intellect equally expanded.

Both originate in the first pathological manifestation of the transcendental being, that is, the idea or motive of individualization. Both forms, intellect and emotion, have then become expanded—intellect with power, emotion with intensity of feelings—solely by the predominating fundamental motive of individualization, to maintain existence.

Moreover, intellect and emotion constitute the intellectual and pathological basis of the transcendental being (the soul) of the organic being. Intellect implies the faculties of sight and reflectibility (meditation); emotion implies a perpetual feeling of want, the determining motive to maintain individuality.

This indicates that emotion, in itself, is neither a form of energy nor any other special form of ability. Emotion is merely a pathological effect, implying the consequent motivation of pleasant feeling, in order to maintain existence. It will remain latent, unless external influences endeavor to menace the existence of individuality. This will affect the pathological being (the soul), feeling unpleasant, and which results in excitement, and naturally these pathological excitements of the soul are emotional effects.

Though the fundamental motivation of the emotional effect is to maintain individuality, the manifestation logically involves a perpetual objectivity, respectively, an intellectual scoping of transcendental being (soul) to acquire that which it thinks necessary and available for its individuality. This is the constant emotional desire of organic beings, and which impels them to obtain those scoped objects in the shortest way, that is, in relation to the

intensity of passion, with the essential difference that the animal objectively scopes with objects which are exclusively necessary for its individual welfare. But man's objectivity in obtaining objects is more intensified in coincidence with the number of objects which he thinks and feels, from his social standpoint, necessary for his welfare, that is, his pursuance of happiness.

Hence, it is the number and character of objects which distinguishes within the organic being the intensity of passion, desire and pleasant feeling. The prevailing passion, to obtain the desired object, in order to maintain an ideal existence, represents logically the tendency of the pursuance of happiness. This tendency exhibits actually a similar expression, demonstrating the feeling of joy.

Now, contrary to this are emotional conditions caused by influences tending to menace the normal, respectively, the pleasant and ideal condition of the individual. The suppressed emotional passion, the tendency of pleasant feeling, is equally a suppression of individuality, respectively, an attempt to annihilate the personal existence. This creates the extreme opposite emotional effects, termed despair, sadness and depression.

Now, these two extreme opposite emotional effects, joy and sadness, excite extremely the pathological condition of the individual, and it will induce it to manifest expressions which demonstrate the prevailing dominating effects through certain forms of gestures, poses and sounds, respectively, cries and calls.

CHAPTER V.

EMOTIONAL EFFECTS CONTINUED—THEIR RELATION TO DEMONSTRATIVE EXPRESSIONS.

Joy and sadness, the expressions of pleasure and pain, are the two opposite emotional effects which move the organic being to manifest such adapted forms of expression which, determined, demonstrate the significance of the prevailing effect.

The most available and convincing forms to demonstrate expressively the prevailing effect are the adaptation of certain forms of poses and gestures. Although they seem to be spontaneously adopted, yet it is apparent that these manifestations

reveal a remarkable instinctive rationality. It requires, certainly, rational efforts to adopt such forms, which teleologically have to result in the computed effect; then, if one individual intends to adopt a form of pose, gesture or sound to demonstrate to another individual the significance of the prevailing effect or motive, it must calculate upon or test the comprehensive power and susceptibility of the co-respondent to be, and in coincidence with this, that demonstrative individual is enabled to modify the adaptations of the forms of expressions.

As an example, the male cricket, in order to demonstrate to a distant female the motive of a prevailing effect, is impelled to develop sounds for which the physical structure it fitted; it has no vocal organs—naturally it develops stridulating organs to produce sounds, which are reaching the co-respondent by distance.

Moreover, the male cricket must also calculate the effect of vibration, which is required for the susceptibility of the female; furthermore, the male cricket must also test the hearing faculty of the female co-respondent; and then only after this, the demonstrative male cricket is capable to develop and adopt forms of expression by which it can communicate by distance. Furthermore, it does not seem obvious that such a demonstrative male cricket is thus mentally qualified to deduct and calculate objectively from the scoped point or from the results of efficiency for the object of an adaptation. Therefore, it seems more apparent that such a manifestation bases merely upon a transcendental intercourse; that is, to detect transcendently the requirable faculties in the other, and then, according to them, to adopt a modus of expression.

It is also apparent that the manifestations of demonstrative expression, through the agency of gesture and sounds, are beginning where the state of physical constitution is most adapted for this purpose; and that only the most simple forms of organic life are mostly adapted for transcendental inter-communication, for the simple reason that their anatomical structure would not allow any modification of forms to demonstrate and express prevailing effects.

But this silent and simple modus of inter-communication would not be available for the necessities of superior organic beings. The more they ascend the climax of physical development, the more and various are the necessities of life, and, consequently,

in correlation with this are also the various forms of motives and principles developed, which again create various forms of emotional effects.

The variation of emotional effects has consequently created the various forms of gesture and sounds for the purpose of expression; each form of pose or gesture expresses more or less emphatically the predominating emotional effect, whether it indicates anger, love, contentment, depression—in other words, the feelings of pleasure and pain.

Love is expressed when the male peacock, excited by conjugal affections, poses to charm the female by showing her the splendor of his plumage. Anger is demonstrated thus: Attempt to take the bone away from the dog, and he will demonstrate in a single pose the effect of his prevailing disposition. Contentment: Watch the cat, which, after having enjoyed her meal, will pose herself in a passive way alongside of the lady of the house, which indicates that she feels well satisfied with the present situation. Observe the sparrow, sitting on the snow-covered ground, hungry and frozen, in a shrunken attitude, pleading in a subdued voice for subsistence—he represents a true picture of depression. A group of playful kittens will demonstrate the feeling of happiness in very active manners.

Moreover, if we look through the microscope and observe these numberless diminutive beings of organic life in a single drop of water in their chasing and exciting motions, should we not also attribute for them emotional affections? Anyhow, that emotional effect, implying the motive and pleasant feeling, is to maintain individuality.

It is this very motive to maintain individuality which, subject to the implied determining emotional effect—pleasant feeling, acquires explicitly, progressively, all stages of superior individuality; it represents individually an endless pathological line, originating in lives of modest form, running through all phases of organic life, till its climax culminates in man's supreme individuality.

Now, coming again to the manifestation of gesture and poses, the most emphatically demonstrated are observed in the order of the vertebrate kingdom. The condition of organic life represents a continuous struggle for existence and a race for objects, where the minds of organic beings are scoping upon. Food and the

sexual question are the principal factors which drive the individuals in the vortex of a continuous competition.

This manifestation creates in the individuals the feeling of rivalry, because the scope of the emotional desire to obtain the required object is always confronted by opposition. Now, though the main object for an organic being, from the standpoint of evolution, is the individual from the opposite sex (male or female), the competitive being is logically placed between two different situations—it stands between the rival and the object. It has to face them objectively, both at the same time. In order to gain the object it has to meet rivalry, and in order to meet rivalry it has to defeat its influence before it can gain the object; furthermore, in order to gain the object it has to charm it and make thereby a subject.

Hence, this creates in the competitive individual the motives and feelings of rivalry and challenge to meet successfully the opponent; on the other side, it creates the principles of charm and appeal to conquer the object. Now, in order to effect a successful demonstration the competitive being is compelled to adopt certain forms of gesture—poses or sounds, which emphatically express the purpose of the prevailing motive.

For instance, it is a known fact that two cats will seldom meet on the fence in a peaceful way—their posing attitudes will indicate that such an event will not pass without any hair-raising result. Similar manifestations can also be observed among the chicken crew, some of them feeling inclined to engage in a little scrap about nothing. But these are harmless manifestations in comparison with the animals living in the wilderness, which have to meet the answer of a merciless bloody competition.

The demonstrative expression of rivalry is merely an address to the other and indicates challenge; the demonstrative expression of appeal and charm is also an address directed to the object, signifying benevolence and friendship. The furious roaring of the male lion in the desert is an address of rivalry in order to challenge. The cackling of a hen, having just laid an egg, is an address to members of the crew and also a proclamation that she has fulfilled an important duty. The snarl and grumbling of a dog over a bone is a warning addressed to the other attempting to share with him.

It is not always the demonstrative pose or form of gesture alone, which forms express emphatically the motives of the prevailing effects. The features of the countenance are other forms which express similar to the forms of poses and gestures, dominating effects, though in a more passive way, although the features of the countenance of animals of the vertebrate kingdom are not to that degree verified in comparison to man, owing to his anatomical structure.

Man's physical constitution is, according to his character and numerous forms of effects and motives, very differently constructed, so that every form of feature of his countenance expresses its relative prevailing effect, intellectually and emotionally. Hence, on the other hand, the number of expressions of the features on the countenance of the animal are but few, but more expressively demonstrated in correlation with the few but determining principles and motives of individualization—respectively, its personal welfare. And these few demonstrative forms of expressions are sufficient for the purpose of intercourse and mutual understanding.

CHAPTER VI.

EVOLUTION OF SOUND-PRODUCING ORGANS AND THE SUSCEPTIBILITY OF HEARING FACULTIES.

Poses and gestures are forms of demonstrative expression only adapted and suitable for a nearby communication, respectively, from face to face manifestations. But though organic beings are also compelled to confer with individuals lodging sometimes at distant places, they have to develop sound-producing organs, in order to reach them through the agency of sounds. For this reason organic beings have to exert the most expedient instrumentality of such apparatus suiting this purpose.

Then again it is the sexual question and the principles of conjugal affairs which have achieved the individual in the culmination of perfect adaptation. But the limited possibilities of physical development determinate the modes of sound-producing organs. They can be divided into two classes—first, the air-breathing vertebrata, which possess organs to produce vocal and inarticulated

sounds; second, insects, which have developed organs producing sounds by stridulation.

Now, attending again to previous remarks, we bear in mind that the more the cerebral organization of an organic being is becoming progressively developed and complicated, the more the mental faculties are becoming positive and active in their manifestations. Consequently, it will follow that the organic being gradually is becoming removed from the basis of direct transcendental intercourse, that is, the pathological-intellectual transmission of motives or thought transference. Naturally, the fundamental basis of transcendental intercourse loses much of its efficiency and susceptibility, and, in order to communicate with the fellow-being, similar qualified, effectfully, sound-producing organs have to be developed to project the motives to the distant object. In linear evolution with this is also the hearing organ, respectively, the susceptibility for the effects of the different modified sounds—that is, the ear.

The climax of the perfection of sound-producing and hearing organs will be observed in the superior classes of the vertebrate kingdom, as there the most simple forms will be found in the lower classes of the organic world—the insects. Darwin notes that all air-breathing vertebrata necessarily possess an apparatus for inhaling and expelling air, with a tube capable of being closed at one end. Hence, when the primeval member of this class were strongly excited and their muscles violently contracted, purposeless sounds would almost certainly have been produced; and these, if they have proved to be serviceable, might readily have been modified or intensified by the preservation of properly adapted variations.

Now, this described apparatus is the rudimental state of developing the vocal organ which reaches, during the course of organic evolution in the human race, the climax of perfection. The excitement, which causes this organ to produce such demonstrative sounds, is created by the prevailing emotional effect.

The created sounds in the movements of the animal kingdom are merely involuntary, demonstrative expressions; they are expressively forced out by an excited emotional effect, being an instantaneous manifestation of some emotional principle relating to the desire to maintain existence, whether this manifestation is

excited by the feeling of pleasure or pain. If, for instance, a dog becomes hurt, he will instantaneously express a howling tone, similar to man when hurt, exclaiming involuntarily in a plain but distinctive note: "Ow!" as well as in a case of sudden, pleasant surprise, "Oh!"

These are involuntarily expressed simple forms of sounds, yet indicating expressively the affected basis of the emotional principle. The sound of pain, a short but distinctive tone, is a cry, demonstrating an alarm—the individuality is in danger. On the other hand, sounds indicating the feeling of pleasure are not as intensely expressed and developed in the animal kingdom as in the human race.

The feeling of pleasure, respectively, the pleasant feeling, indicating the emotional motive, the desire to maintain individuality, implies the feelings of right and justice; that means, that to obtain and maintain individuality or a pleasant existence is a matter of course which is coming to the individual. Naturally, the individual does not find anything extraordinary in the pleasant feeling and considers the pleasant existence as a normal condition. This is a rule of all organic beings. Hence, on the other hand, if the personal existence is menaced by certain influences, which caused pain feeling, the individual will feel prejudiced of that, of which it thinks it belongs to him by right—that is, the liberty to individualize—consequently this manifestation will cause its excitement. The individual becomes instinctively moved to exclaim its feelings or motive to the outer world by using the sound-producing apparatus to express a certain sound, signifying the prevailing effect or motive. This demonstration is an involuntary address, whether directed to the world of organization or to the inflicting influence; thus the exclaimed sound, directed to the organization (species) indicates appeal and pity; thus the exclaimed tone directed to the inflicting influence (enemy) indicates anger and revenge.

Now, in correlation with organic evolution, the emotional effects have been verified equally in form and intensity, including the essential forms of intellect. In coincidence with the various forms of emotional effects the modes of demonstrative expression have also been verified. Each particular effect has its own modus of expression—all differ distinctly from each other. Poses and

gestures express distinctly the form and intensity of the prevailing effect—the expressed sounds, vocal or stridulating, which are scaled from the lowest tone and ascending up to the highest note, demonstrate also the various pathetic dispositions, from the subdued upward to the exalted condition.

Now, going over to that class of organic beings, which are, owing to their anatomical structure, not able to produce sounds by vocal organs. There are the insects, which demonstrate their emotional dispositions in producing sounds by a stridulating apparatus. Though these are individuals of a lower rank in the animal kingdom, their emotional conditions are not so intensified and their intellectual faculties not to that extent exerted in comparison with beings of the classes of the animal kingdom. But, nevertheless, in order to demonstrate their dominating effects and motives, they have also achieved to develop a sound-producing organ, which is also expediently serviceable for the demonstration of prevailing emotional effects, and sufficiently adapted as a medium for inter-communication and mutual understanding.

Hence, to which extent the impulse of producing sounds is demonstrated on one side, and on the other side susceptibility and reflexibility are exhibited, can be observed frequently when the summer has set in and new life is spread out all over the field. Thousands of different sounds and tones are vibrating through the air, coming from all directions, from unseen sources, from out the grass, bushes and trees. Any human soul, fond of ardent observation in the life of nature, will notice that all these various tones and notes represent the emotional effects and motives of intelligent organic beings, demonstrating their motives and feelings of pleasure and pain, whether to charm or challenge. This indicates that pleasure and pain are not only alone attributable to man—that there are numberless beings besides him enjoying the liberty and the evolution of individualization. They send their little voices up in the air when the sun radiates in warming and animating rays, and they quiet when dark clouds attempt to darken the field. Prevailing effects, representing either pleasure or pain, impel also insects as well as other organic beings, to demonstrate their feelings by sounds and various forms of notes. The sphinx atropus, a species of hawk moth, squeaks when hurt, and it also utters, when extremely emotionally depressed, plaintive sounds.

The most prominent musicians in this class of organic beings are the crickets, grasshoppers and locusts. Some of these insects have such powerful organs that their sounds and tones can be heard for quite a distance. According to Darwin (who notes from Landois), the stridulating apparatus of the field cricket (*grillus campestris*) consists of from 131 to 138 sharp, transverse teeth on the under side of one of the nervures of the wing cover; this toothed nervure is rapidly scraped across a projecting smooth, hard nervure on the upper surface of the opposite wing. First one wing is rubbed over the other and then the movement is reversed. Both wings are raised a little at the time to increase the resonance.

Similar to this are the stridulating manifestations of grasshoppers and locusts. One of the locustidæ, known all over as katydid, when placing herself upon the branches of trees stridulates in a very powerful manner. Some of these stridulating apparatus resemble a musical organ, which produces sounds, scaled in different tones and notes, elevating from a subdued tone up to the highest note.

Darwin relates from Mr. Bates, who says: "The male field cricket (*achetidæ*) has been observed to place himself in the evening at the entrance of his burrow, and stridulate until a female approaches, when louder notes are succeeded by a more subdued tone, while the successful musician caresses with his antennæ the mate he has won."

The most peculiar music of these insects, performed during the breeding season, is manifested by two Italian species of grasshoppers, the *cicada plebeja* and the *cicada orni*. The sounds and notes, which are confined to the male alone, are produced by a very singular organ, which, it is said, consists of several winding cells under the abdomen, separated by different membranes and an opening externally by two narrow valves. In the center of these cells is contained a scaly, sonorous triangle, and exterior to this are two vigorous muscles, by the action of which the cells are supplied with air through one of the valves, and so powerfully do they reverberate against the triangle that they produce the notes of which the grasshoppers' song consists.

This illustrates plainly that their manifestations are demonstrations of emotional effects, induced by the implied determining

sexual principles to obtain the object which the male individual feels necessary for its personal existence—first, calling the attention of some distant female and inviting her, which is indicated by the louder calling tones, then the more softer tones, indicating to persuade the proudish female—coaxing and caressing, until a mutual understanding is formed which finally results in the projected conjugal alliance.

It may easily be doubted if the stridulating organs of insects would be of sufficient service for them for the purpose of intercommunication and mutual understanding, though insects are not endowed with any form of a hearing organ, because no trace whatever can be detected which would in any respect resemble the rudest form of the hearing ability in the vertebrate life.

But I think it is out of the question, and it is very apparent, that the mutual understanding of insects and similar individuals is not based solely upon telepathetical intercourse—that is, transference of feeling and motives—but also upon the basis of accoustic principles; and even if no trace of a hearing organ can be observed and some females have no stridulating apparatus to produce sounds, in order to demonstrate also the presence of emotional principles.

But it is logical, if an insect developes instinctively a rational sound-producing organ, it does this for the simple purpose of demonstrating its motives and feelings to another individual, representing an object, whether from the sexual or rival standpoint. An insect, with the instinctive motive to produce sounds, in order to reach by their efforts the object desired (on other insects), must naturally be aware that the corresponding being is susceptible to the vibrating effects of those projected and addressed sounds; otherwise, that insect would not make any efforts to develop and adopt a sound-producing apparatus, if it be of no avail.

Hence, on the other hand, an insect, for instance, the female, without a sound-producing organ, must logically pathetically so be organized that its emotional effects subjectively become excited to reflect upon those sounds, projected from a related being. The truth of such manifestation has frequently been demonstrated in the events of sexual affairs in animal life, and any ardent observer will corroborate this fact.

Moreover, the knowledge of each others' pathetical and ana-

tomical constitution could only be acquired by their innate intuitive intellect; and only owing to this, it can be able to adopt an organ for the purpose of external (sensational) intercourse. Furthermore, this knowledge is apparently not acquired during their present time, but obviously they have perceived it through inheritance in a rude form, and then during organic and pathological evolution gradually exerted.

Now, then, the rational development of sound-producing organs by small insects antecedently sets forth the presence of a hearing sense, implied in the constitution of the females; and so conversely, if the females were not endowed with a hearing sense, the males would not adapt their physical structure to the use of external intercourse. This fact will overthrow the opinion of those who may not believe in the hearing faculties of the insects.

The hearing faculty of the insects, as also of other organic beings, is not acquired during the progress to maturity—the postulates of the individual organization in its primeval state implies already the hearing faculty—but during the morphological evolution it has become expediently exerted. The primeval phase of the hearing faculty begins simultaneously with the organization of individuality—that is, the union of intellect and body.

The transcendental being of the individual, even of the primeval state of organic life, requires the physical structure as a basis for the transcendental and pathological evolution. The body represents the physical environment of the transcendental being of the individual. Its normal condition, that is, the normal state of mobility of the body, is determined by the ideal mobile capacity of the soul, the transcendental being. This normal state represents repose and tranquility. Any influence which effects to bring the body, the physical basis of the soul, out of the ideal normal state, means to bring also the soul out of its ideal normal state—this influence will excite her to reflect upon.

Friction, caused by gross matter; vibration, caused by effective sounds; ethers and other similar forms, are influences, capable of affecting the sensitive disposition of the individual, especially those of the lowest state of organic life. Now, taking only vibration, the effects of sounds, in relation to the subject, which affects the body of those diminutive organic beings, the whole physical

basis is becoming vibrated and put thereby out of the ideal normal condition. Thus beings reflect upon those influences and act accordingly. Now, we may say as well that their whole body is a hearing organ, respectively susceptible for accoustic principles. It is this the first state of the hearing sense in its rudest form.

Its latent faculty of analyzation is not yet evolved in order to analyze the affecting sounds into their components, because the organic state of those beings does not necessitate it, for the present time, although the constitution is apparently adapted to communicate transcendently. But then, in the progressive course of organic evolution of the individuals, where the physical structure is becoming more perfected in form and size, the susceptibility of the body to the effects of vibration is becoming gradually less. The consequence is that the individual, ascending now morphologically to the superior states of organic life, is impelled to localize the susceptible faculty to a more adapted place on the body.

Naturally, every state of organic beings has, according to its rank in the organic kingdom, instinctively developed a hearing organ, whether it is located probably beneath the surface of the body, as perhaps by insects, or it is situated on the surface of the body, as exhibited in the vertebrate kingdom, which is termed the ear. Insects, apparently, it seems, must have a susceptible organ underneath the surface of the body, or they must obviously have an adapted spot on a certain region of their physical structure which is susceptible to the effects of sounds; because, no form resembling in the least a hearing apparatus can be traced on their body. Hence, the way the insects reflect upon those sounds projected from each other demonstrates plainly that in both sexes the hearing faculty is well adapted for the purpose of intercommunication, especially so far as it concerns their mutual interest.

Some naturalists doubt the hearing sense of spiders; again, others declare that they are attracted by music. According to Mr. Westring, who observed that male spiders of different species have stridulating organs, while the females are mute, it is concluded that this serves for calling the attention of the female in relation to conjugal affairs. Moreover, for instance, if a fly is confined to a small piece of sticking paper, she will at once commence a

lively humming; then, placing her in this condition near a cobweb, but in such a situation that hidden a spider is unable to see her, the humming sounds of the fly will soon call the spider's attention, which will quickly appear at the entrance of the cobweb in order to capture the prey. Now, repeating to remove and replace the fly will always effect the same results.

The doubtful presumption of man concerning the hearing faculties of insects, is generally dictated by his empirical opinion, considering his hearing faculties, the normal measurement by which he forms a comparison between himself and the animal at general. There is, however, an extreme distinction of the hearing faculties-between the class of insects and the vertebrate kingdom, especially man. The power to analyze the sounds and tones is in close relation with the powers of intelligence. The ear of man, in coincidence with his intelligence, is adapted to reflect at the same time on a number of different sounds; and a well adapted musical ear is capable to analyze and detail these various sounds into their very components, in a very limited time.

But, as generally the human mind is too deeply absorbed in the vortex of speculations and mental activity, the power of reflection and analyzation will thereby remain naturally more indifferent to these prevailing sounds; except a born musician is subjectively more able to reflect upon the effects of sounds and tones.

Now, on the other hand, far different to this are the hearing manifestations of the animal. Although the hearing faculties of the criminal are also, to that extent, capable to perceive the converging sounds and able to analyze and detail them to a certain extent, according to its own personal interest it remains generally indifferent to all those sounds, which imply no indication of effects which would be beneficial to its individual welfare.

An animal will naturally adapt its hearing faculties to nothing else but to the use of ideal objects, or matter concerning its existence—that is, food, generation and comfort. Therefore, an animal concentrates its power of analyzation to sounds, which are in direct connection with ideal objects.

Hence the hearing sense of the animal is more expediently susceptible to all those various sounds and tones coming from related sources, that is, from male to female, and conversely.

Logically, an insect will subjectively reflect and analyze the stridulating sounds, projected and addressed to it by another insect of the same order; the female will reflect upon the stridulating demonstration of the male—the female will reflect upon no other sounds except those indicating danger. The human voice will probably sound to the insect as thundering sounds to man; it may be affected by it, but it remains indifferent in the same way as a concert of a Mongolian band would sound to a European as a meeting of pot and pan, and so conversely.

CHAPTER VII.

ON HABIT AND INHERITANCE—THEIR RELATION TO THE SUBJECT.

There is another form, although of a secondary order, which completes the modus of intercommunication, and that is habit.

The subjection, that is, the yielding of an organic being to its own innate determining vital principles, the tendency of individualization, is termed habit. The principles of emotional effects, the maintenance of individuality, are not only inducted and directed by its implied intellectual faculties to obtain a rational individual existence. There are predominating feelings, representing merely a yielding to easiness and indolence to afford exertion. Thus prevailing tendency is termed habitual. Now, in order to avoid a liable confusion or an erroneous conclusion of the last form, it is necessary to outline the essential being of habit, so far as it relates to the subject.

In linear progression, and parallel with the organic and transcendental evolution, are growing and equally organized the vital forces and dynamic energies, in order to sustain the organic existence of the individual. Through these instinctively rational organized forces manages the transcendental being, that is, the soul, the basis of the physical structure.

There are forces modified for plastical service, as growth and construction; there are forces systematically modified for the principles of generation and assimilation; and there are also subtle energies, forming the structure and executing the functions of sensation. The specific modus of these vital energies is tending to perpetuality, that is, the maintenance of the modified form,

given them at their origination, simultaneously with the origination of the organic being. These forces act spontaneously and independently from the intellect. The intellect and the pathological constitution are subjected to their influence during all phases of organic existence, until a superior will power is becoming to that degree exerted that the intellect, respectively, the transcendental entity, is capable to reshape and alter the original tendency of these vital forces. But so long as the transcendental entity, the soul, is endowed with an inferior will power, the organic being is extremely subjected to the impulsive effects of these vital forces and dynamic energies. This subjective state of the organic being, the yielding to these vital principles, is habit, and its tendency is habitual. This manifestation marks the real animal life, the lower organic kingdom, and distinguishes it from the beings of the supreme organic life, where wisdom and spirituality are the dominant rulers.

But again, on the other hand, these implied vital energies, representing the principles of natural laws, direct the animal to the scope of development and perfection; without these impulsive and rationally exerted vital energies, organic beings of the lower rank in life would drop off from the pathway of evolution. Hence, in due obedience to these vital principles, the animal always acts in compliance with nature. Through the aid of these vital energies, all organic beings have instinctively and progressively developed their particular forms of physical manifestation, as also the modes of gestures and sound-producing organs and other similar forms of demonstrative expression. Subsequently, according to the perpetuity of these vital energies, these forms of demonstrative expression must also remain perpetual and constant in their respective manifestation.

Moreover, are these forms of vital tendencies in one way gradually acquired by the individual itself during organic evolution, are they in some way acquired by the laws of inheritance. The manifestations of inheritance depend upon the same laws of life, viz., the principles of vitality. Hence, according to this, it will create a uniformity of these vital manifestations among the individuals, and especially of the same order. Naturally, there will be also a uniformity of gestures and the modes of demonstrative expression generally exhibited among the beings, especially when related.

Though these forms of vital energies originate simultaneously with the origination of the organic being, are they likewise the same as intellect and the pathological being postulated in the transcendental constitution of the organic being; and hence, from the very beginning, these vital forces and dynamic energies perform the labor of mobility and organic evolution. The intellect, viz., the soul, yields to their impulsive tendency, and, on account of the latent condition of the implied will power, naturally not capable to afford any modification of these vital tendencies, permits them their own way to elaborate, and instead of being conducted by the intellect, the intellect is conducted and is placed thereby in a state of passiveness and easiness. Naturally, the feelings of easiness and indolence are originated—the yielding is becoming a tendency, viz., the habitual state of the intellect.

Furthermore, though innate forms of vital manifestations are also closely allied with the intellectual and pathological principles, which in unison constitute the transcendental condition of the organic being, these vital forms contribute also their share to the introspective sphere of the sub-consciousness. Naturally, according to the law of thought transference, that is, transcendental perceptibility, visual and pathological, the one organic being is capable to perceive also the forms of the innate vital manifestations of the other being, because the basis of these vital forms is closely associated with the postulates of the intellect and pathological faculties, the essential powers of perceptibility and comprehension.

Now, referring to the relation of habit in regard to the exhibitions of demonstrative expression, the vital forces and dynamic energies, which are fundamentally the impulsive powers of all habitual transactions, such as gesture and sound-producing, maintain, according to their perpetuality, also the modus of prevailing demonstrative expression. Hence, owing to the latent and passive will power of the animal, the forms and modes of demonstrative expressions remain almost unchanged through all life. The subjective and passive intellect does not make any effort to alter the mobile tendency of these vital energies, serving for the purpose of demonstrative expression. Naturally, these forms maintain constantly their characteristic features, unless extraordinary circumstances, strongly imposing upon individual life, may induce the animal to alter the modus of their prevailing vital tendencies

and adapt them more to be serviceable for present conditions, if necessary.

This determining stability of these vital tendencies, which perform the mobile functions of demonstrative expression, constitutes essentially also the basis of inheritance. The stable tendency of these vital and dynamic functions, in co-operation with the associated plastical faculties, mold the physical and pathological constitution of the offspring; that is, in other words, the transcendental entity (soul) of the parent being impresses its signature of individuality upon the individuality of the offspring; it receives, simultaneously with its own origination, the same transcendental and physical peculiarities of the parent.

This establishes a uniformity of vital and physical functions between parent and the offspring; naturally, any manifestation of these life functions, exhibited by the parent being, will be perceived and understood by the offspring, which instinctively and intuitively is reasoning from its own analogous individual constitution. Although the intellect of the offspring may perhaps, for the present time, not sufficiently be capable to perceive and comprehend to full extent the opposite (parent) manifestation, yet the impulsive tendency of its own spontaneous vital and pathological manifestations will its intellect the scope and principles of these transactions.

Hence, the offspring, reasoning intuitively from its own individual constitution, will also subjectively reflect upon these influences, projected and addressed to him by the parent being in the transactions of daily life, because though the postulates of these intercurrent manifestations are related to each other, are thus consequently also the effects of these tendencies the same. Naturally, the offspring will understand instinctively the principles of these transcendental or psychological, as well as the physical manifestation, of its parent being, as well as in return the parent will understand the similar transactions of the offspring.

Now, coming again to the subject. The offspring, having thus inherited all the individual peculiarities of the parent, has then also inherited the particular modes of the parent's demonstrative expression, serving for the purpose of intercommunication and mutual understanding, such as poses, gestures and forms

of sound-producing organs. Like all other life functions, dependent upon and executed by these stabile spontaneous vital energies, so are also the functions of demonstrative expressions dependent and executed by these very same vital principles. Their modes and forms become also stabile and prevailing through all life-time of the organic being; latent or more or less expressive during infancy, they become gradually exerted during the process of maturity.

Now, though every specified class in the animal kingdom descends in linear progression from one progenitor, the offsprings have, during the course of evolution, immensely multiplied. Furthermore, though all individuals of a certain order or species are subject to the stabile vital tendencies, they have consequently also maintained their inherited modus of demonstrative expression—every particular point exhibited in the parent.

Naturally, there prevails a remarkable uniformity of these expressive functions between these related organic beings. The progenies have reserved, owing to the stability of the vital forces, all these particularities inherited from the far back progenitors; except, some extraordinary circumstances may have compelled them to alterate instinctively and rationally these inherited forms, and adapt them to the present conditions of life.

PART II.

THE VARIOUS FORMS OF EXPRESSION.

CHAPTER VIII.

RATIONAL DEVELOPMENT OF MODES OF EXPRESSION, BY REASONING FROM INTUITIVE IDEAS.

In relation to the subject, so far as the reasoning faculty is concerned, it is obvious that these manifestations, by reasoning intuitively from a constructive idea, are more prevailing among the lower classes of the organic world than in the higher. The extreme opposite classes in the organic world, organized and enabled to demonstrate their feelings and motives, are on one side the vertebrata, on the other side the class of insects, properly represented by monkeys and ants, bees and similar kinds.

Now, if we compare the intellectual and pathetic manifestations of the monkey and the intellectual exhibitions of ants, bees and kindred beings, we must logically come to the conclusion that the amount of effort of intelligence is not always dependent upon a perfectly constructed cerebral organization. The physical structure of the ant is not to that extent adapted to render proper utility for intellectual and pathetic demonstrations as this is the case with the monkey.

The forms of demonstrative expression of the ant and other insects are only few in number and simple in compliance with the simplicity and faculties of their respective anatomical structure. Their body allows only certain poses, demonstrating some ardent emotional effects; their antennæ render very little service of expression by gesticulative motions, and as far as it concerns stridulating organs, providing there are any, they are also of little avail to render perfect service for intercommunication and mutual understanding.

But it is very doubtful that the facilities of expression of these few simple forms are competent enough to meet the questions of all the various complicated functions which are manifested in the social life of ants and bees. Some naturalists base their opinion upon the theory that the movement of intercom-

munication and understanding of ants depends solely upon the mobility of their antennæ. It is apparent that they serve to a certain extent for the demonstration of the principal emotional feature and motives, as, for instance, for charming and caressing opposite sexual mates; furthermore, they may also represent the faculties of touch and smell.

It seems rather erroneous to suppose that the antennæ of ants possess the faculty symbolizing by their different forms of motion every form of instinctive and rational transaction and other similar features prevailing in various modes within their organization. Moreover, it seems more probable that the main part of demonstration and communication bases on thought transference and the principles of intuition. Those naturalists, ascribing all intellectual and expressive transaction to the antennæ, and in some respects to the laws of inheritance, deny thereby intellectual, reflecting and reasoning faculties of ants as well as other insects.

They claim that the intellectual transactions are more of an automatical or mechanical character, inducted by an inherited power, which works similar to a spring in a clock. This presumption sets forth that a reasoning intellect is therefore not required, and that ants and bees are not endowed with a constructive intelligence, directing teleologically the course of individual evolution and the welfare of their own and their progeny.

But now, the anatomical constitution exhibits the presence of senses, of which the most important is sight. The faculty of sight serves to distinguish and select objects. The faculty of sight implies logically the postulate of visuality, though visuality is an attribute of intellect; these faculties form, therefore, essentially the fundamental basis of the transcendental constitution of the organic being.

Now the motion (motive) of the individual to distinguish and select an object rises from within the center of intelligence; the scoped object is reflected on the physical organ of sight, that is, the eye; from this the object becomes reflected to the innate visuality, that is, the power of visuality subjectively copies the pictorial outlines of the object from the organ of sight—the copy, that is, the ideal form, drawn from the corporeal object, becomes stored within the transcendental periphery of the individual. These visual copies become subjectively associated with the pre-

viously copied visual forms, exhibiting thereby a concrete state of the transcendental being of the individual. The power of introspective visuality, that is, the reflexivity, constitutes consciousness; the power to reflect these innate visual forms exhibits memory.

Moreover, the thus constructed consciousness inducts or excites the intellect (soul) to meditation, that is, to contemplate these ideal objects stored up in the introspective periphery within; furthermore, the intellect (soul), obedient to the motive of individualization to maintain existence, concludes from these ideal objects, viz., ideas, what supposedly is the most beneficial for the individual welfare, that is, reasoning from cause and effect.

Though, according to their anatomical structure, ants as well as other insects, are not endowed with a cerebral organization, analogous to the vertebrate kingdom, from which originates the positive super-consciousness, they are reasoning merely intuitively from the sub-consciousness, because the power of reasoning intuitively, which also originates in the sub-consciousness, renders equal service in the relation of economical affairs and other emotional and sexual events, as well as the reasoning and deducting power of the more objective super-consciousness of the highest classes of the vertebrate order.

Hence, concluding from this, it is obvious that ants and bees manage certain accidental circumstances satisfactorily for the best of their own welfare; and I think that this explains and solves the question of the rational transaction of ants and bees. Of course, their reasoning faculty is limited and the power of reflexivity not so much expanded, in compliance with the restricted number of ideal objects stored within their transcendental constitution; naturally, their reasoning and rational manifestations are very diminutive transactions in proportion to the vertebrate world.

Furthermore, though, according to the absence of a perfect cerebral organization, which implies also the postulate of absolute will power, by which an individual is capable to alterate the plastic tendency of vital energies, the insect is extremely subjected to these spontaneous impulsive vital tendencies, favoring the laws of habit and growth. Subsequently, the physical and pathological condition of the being remains their inherited individual forms

for ages and ages, till this class or species may under certain circumstances be extinguished.

Now, ants and bees are organic beings which live in a state of social organization. This implies that, in order to maintain its perfect shape, every individual is impelled to contribute its share of work and effort to the communal welfare. This relation requires the modus of conference, viz., to manifest an intercommunication between the members in order to effect a mutual understanding.

Now, if every individual joining this organization were acting automatically, that is, without reflexibility, reasoning and constructing intellectual powers, the whole movement of the organization would resemble much of a clockwork—if each one, independent from the other, would act mechanically and blindly follow its spontaneous impulse, received at the very moment of origination, what would be the consequence? It would result surely a confusion within the organization in cases of different and mixed affairs, which, in order to straighten them out, requires the corresponding efforts of two or more individuals. Firstly, reasoning from each others' affection and motivity; secondly, reasoning from cause and effect concerning the related affair; and, finally, the rational corresponding and combined efforts of every participated individual to proceed in order to overcome the difficulty crossing their road. But it has frequently been observed how ants have managed difficult situations through combined efforts—there is no place for a blind-working or mechanical laborer; then, if every individual would resemble largely a wheel in a clock, one individual would be impelled to stop, if the other did not correspond with him; and finally, no success could be effected to manage any form of accidental difficulties.

But a more mechanical feature represents the whole function of generation, because, as the principles of generation are based directly on the stabile, plastical vital energies, and being in their present form inherited from the progenitors, inducts and impels the intellect (soul) to minute obedience. Hence, owing to the faculty of thought transference and intuitive susceptibility, every related organic being (concerning individuals of lower organic world) perceives intuitively from the other fellow being the similar forms and principles of these very same vital ques-

tions (generation), and then to thus established understanding they are capable to work subjectively hand in hand, in perfect harmony.

Moreover, as a further evidence that certain animals, especially certain insects, are able to manifest in some cases very remarkable rational transactions, although relating very little to the subject, I shall allude to a certain kind of wasp, which is hunting for spiders, beetles, caterpillars and similar kinds of insects, using them for prey. But these wasps do not pursue them in order to devour them immediately; they consider this prey merely as objects of provision for their coming offsprings to be feeded upon.

When this wasp seizes a caterpillar, she penetrates her sting with such an anatomical accuracy between the segments of the body that its effect only paralyzes the victim and prevents it from escaping. After this manipulation the paralyzed caterpillar is dragged into the nest of the wasp and preserved in the living state until it may be served as fresh food for the coming offspring.

Now, this rational transaction could not be performed without the faculty of reasoning power; that is, in this case reasoning intuitively. The wasp has not any anatomical knowledge of these insects, gained by any modus of experience; hence, the wasp could have only acquired intuitively the knowledge of the anatomical structure of the victim, and then reasoning from this point, she is able to scope her efforts and calculate the effects with minute accuracy.

It is this the same power of intuitive reasoning, by which organic beings, viz., male individuals, are reasoning from the anatomical constitution of their respective mates, in order to adapt such sound-producing organs, which are in compliance with the susceptible faculty of the subject.

REASONING BETWEEN DISTINCT CRIMINALS.

Having in the preceding chapter delineated the manifestation of intercourse and understanding, prevailing between individuals of the same kind, I shall, in the present chapter, endeavor to illustrate the rational intercourse and mutual understanding between individuals of very distinct species.

To investigate the character of mutual affection and the efforts to provide for the helpless weaker part, led Mr. Komanes

to try the following experiment. He induced a Brama hen to hatch out an egg from a peacock. Although it is a general rule of the hens to reject their young ones as soon as they are capable to take care of themselves, this hen rendered undivided attention and care to that young peacock during a lapse of time of eighteen months. During all this time the hen did not lay one egg. Moreover, a very peculiar feature to be considered, this hen, like other hens of peacocks, picked and tried to straighten out the plumes and the tufts on the head of the young peacock; and, in order to perform this transaction conveniently, she mounted herself on a higher and suitable object to reach his head. The peacock then placed himself in front of her, bending his head forward, and the hen began to pick and straighten the tufts with greatest care.

Now, in this strange case, there was not any form of an inherited faculty present, as gesture or other forms of demonstrative expression, which would induce the hen to act in compliance with the habits of peacocks. Hence, it is obvious that the hen must have been reasoning intuitively from the transcendental being of the young peacock; that is, the hen was reflecting upon the instinctive emotional effect (motive), the pleading to be cared for; finally, these intercurrent feelings established an understanding, which resulted—that is, the hen was induced to act here as a fostermother.

A much more peculiar case of an alliance is exhibited where two organic beings, of two extremely distinct species, join for the benefit of their mutual welfare. There is the hermit crab, which, according to his tender and delicate anatomical organization, is compelled to seek shelter in a vacant shell, merely using it for a tenement. But the weight of the shell retards his locomotion in the pursuance of prey. What does he? He forms an acquaintance with a sea anemone (*Sargatia parasitica*) and induces her to ally with him and mount herself on his tenement, near the edge of the shell. The anemone prefers frequently current waters, and this she will find when she joins the crab. Both are carnivorous individuals. The tentacles of the anemone, searching and reaching out for prey, will always gather sufficient food for both. The anemone has thereby the opportunity, when the crab slowly moves to other places, of a new field for prey; this again impels the crab, in order to receive new food, to maintain its mobility.

Moreover, when the time is coming that, owing to the growth of the body, the crab has to look for another more suitable shell or house, it works carefully with its claws to remove the anemone from her old position in order to accommodate her migration over to the new tenement.

Now, taking into consideration the extremely different physical organization of these two individuals, we will observe that there is not the slightest possibility to communicate and confer on the basis of inherited forms, by which they could demonstrate their motives, in order to effect thereby an understanding; available modes of gestures, poses or sound-producing are here fully excluded. The notion, viz., motive, to improve his condition must originate from the crab, though, according to anatomical structure, he is the more positive and objective individual than the simple-formed, passive, stationary sea anemone. Hence, the rational impulse of the crab is apparently powerful enough to effect an impression upon the anemone, to subject to his rational influence. Furthermore, it is obvious that the crab is reasoning from the effects of its inconvenient condition and discovering intuitive remedy in the co-operation with the anemone, that is, that her particular condition in life would render benefit for his welfare. On the other hand, this must be the same with the anemone, which also intuitively understands the motive of the crab to be beneficial for her welfare; finally, she subjects to the motive of the crab and allies with the latter.

RATIONAL POSING ATTITUDES.

The posing attitude of the male peacock before the female, in displaying his splendid plumage, is also a particular form of demonstrative expression to call the attention of the female in order to communicate with her about conjugal affairs. The way he displays his plumage indicates plainly that he is conscious of its imposing beauty and its charming effects manifested upon the feelings of the female.

Analogous to this, the male pheasant (poliplectron) poses before his mate in order to excite conjugal affection. Now, concluding from these rational manifestations, it is apparent that both, the peacock and the pheasant, are reasoning intuitively (instinctively) from the emotional disposition of their respective

females and afford these adaptations in order to charm and conquer.

Moreover, the plumage of the peacock is ornamentally differently arranged from the plumage of the poliplectron; and in order to effect a more charming impression upon the female, they have to assume such posing attitudes, which are apt to show off the splendor to the fullest extent. According to Darwin, who records: "When the male peacock displays himself, he expands and erects his tail transversely to his body; he stands in front of the female and shows off at the same time his rich blue-colored throat and breast. The breast of the poliplectron is obscurely colored, and the ocelli are not confined to the tail feathers. Consequently, the poliplectron does not stand in front of the female, but he erects and expands his tail feathers a little obliquely, lowering the expanded wing on the same side and raising that on the other side. In this attitude the ocelli over the whole body are exposed at the same time before the eyes of the admiring female in one grand bespangled expanse. To whatever side she may turn, the expanded wing and the obliquely held tail are turned toward her."

Now, these are only two examples, but they demonstrate sufficiently the ability of the animal to manifest rational transactions by the means of reasoning intuitively (instinctively) from cause and effect. The peacock and the poliplectron, both of them, are conscious of that form of pose to be adapted which is the most available for that purpose. Each one of them, though ornamentally differently constructed, must apparently reason from the scope of possibility which surely must render the desired effect to charm the female.

The peacock is reasoning from his particular structure and logically has to assume a position in confronting his mate in order to render to her a full display of his grandeur to fullest extent. Hence, on the other hand, the poliplectron is reasoning also from the particular arrangement of his body and naturally he has to assume a pose in placing himself sideways before the female, so that she may obtain a full glance of his spangled plumage.

Now, what intellectual influence enables and induces them to such rational transactions? Their intelligence (mentality) has not reached that grade of rational objectivity by reasoning, and deducts from an idea originated by experience by present condi-

tions, although these manifestations indicate the influence of intellect.

They have not assumed this mode of posing during their present time; that is, owing to their incompetence of mental ability. Consequently, they must have the fundamental idea of this rational instinctive transaction inherited from far back by their earliest progenitors, and then they have apparently this *modus* more expediently adapted from generation to generation.

The fundamental idea of this rational transaction (these rational poses) must have been already originated in the remotest progenitor of that specie; that is, originated in the male in order to correspond with the feelings of their respective female, the feeling of taste (color and beauty) and be courted. The impulse of this idea, that is, the motion of the male individual to charm and conquer the sexual mate by this means, must naturally set the plastical energies in motion, to construct the fundamental original forms of ornamental plumage, at the beginning of primitive features and simplicity.

Furthermore, through the laws of inheritance, the stability of the plastical energies, these forms of rational manifestation have become in the succeeding generations gradually more and more impulsive and inductive; in other words, have become spontaneous functions, implied within the psychological constitution of the individual, which instinctively becomes excited in cases of contact with the object, and then inducts the objective intellect (mentally) to transact accordingly.

Through the impulsive character of these spontaneous energies, the individual is becoming subjectively conscious of its subjective-objective demonstrative manifestations; they firstly induce the instinctive intellect (sub-consciousness), and from which then the objective intellect (super-consciousness—mentality) is reasoning the principles of the prevailing effect.

Now, we must bear in mind that the here so-termed intuitive intellect or sub-consciousness and the objective-positive intellect or super-consciousness represent essentially one and the same individualized intellect (soul) which together with the pathological faculties forms the transcendental constitution of the individual. But the so-called intellect represents in its actions and abilities two different phases. The transcendental individuality of the organic

being manifests itself simultaneously in its two different phases—in one within (intuition), in the other, externally, manifesting itself through the agencies of the sensational and cerebral organization, senses and mentality.

But it must be also understood that the animal generally is intellectually and pathetically more tending to subjection and inductions in regard to its intuitive impulse than the positive-objective intellect (mind) of man. Hence, the animal executes subjective-consciously all these life principles, rising from the bottom of the sub-consciousness, which is actually the fundamental and primeval stage of transcendental individuality (soul), or in other words, that state of individuality rooting deeply in its primitive state of organic existence. All these spontaneous impulsive manifestations, vital and intellectual, which are rising from this stage of individuality, inducting impulsively the mental powers, to execute their principles, and the mind, that is, the intellect, in the phase of super or day-consciousness, subjects and yields to this impulse, and the nerves and the power of the muscles perform mechanically the labor. These are manifestations, as generally termed, instinctive transactions, and the impulse, instinct.

CHAPTER IX.

ON GESTURES—VOCAL SOUNDS AND SIGNS.

Expressions, Relating to Animal Conjugal Affairs.—The sexual relation of organic beings renders to the ardent observer an extensive field for the investigation of demonstrative expression and other forms for intercommunication. The sexual relation is naturally the essential basis, where all the prevailing forms of demonstrative expressions become mostly developed and varified.

The principle of generation requires the compilation of two individuals, a male and female; according to the principles of individualization, to obtain individuality, which considers all objects required for the existence of individuality as belonging to the individual (property, by right), and as a matter of course, so considers one individual the other, to which it has an objective

desire, as an object, which perfects its ideal existence of individuality.

This is the logical conclusion and causal principle that the male individual, after being allied, considers the female as an object belonging to his individuality (by imaginary rights), and so it is conversely with the female individual. Naturally, they complete thereby mutual individuality. Moreover, thus two conjugated individuals consider logically also the product of their alliance, the offspring, as an object belonging to their individual existence, viz., to complete their individuality. The individualistic conception is prevailing throughout the higher organic world and is frequently demonstrated among vertebrata, living in large groups and colonies, in order to associate for the benefit of mutual welfare. All thus sexually conjugated individuals consider each other inducted by this impulsive empirical individualistic feeling as personal property by right; and this feeling or individualistic conception is also becoming logically the postulate of reverence, which they reveal to their mutual personality—the male to the female, and conversely, that is, more or less in relation to their rank in organic order.

The leading part of exemplary conduct in the relation of conjugal affairs in the animal kingdom is taken up by the birds. Most of them live in a monogamic state of lifetime and only a few species prefer the polygamic state. It has been observed that a couple, once united, will stay faithfully together till death separates them. But there are also exceptions, where one or the other mate might give itself away to exceedingly impulsive passions and violate the ideal chains of their conjugal relation. But then, as a general consequence, the rival and the violator will have to bear often very serious consequences, which in some cases will result in the penalty of death.

The mutual affections of mated pigeons are well known to every one. Their billing and caressing manifests truly that these are transactions to demonstrate and express prevailing effects and motives, and are also well adapted for the purpose of intercommunication and mutual understanding. Moreover, it has often been observed that male birds, while their females are tending to their breeding duties, endeavor to amuse and entertain them by some

comical gestures and various effective songs, in order to accommodate them during the time of maternal obligations.

Furthermore, I shall allude to the exciting congregations of large groups of crows, magpies, sparrows and similar kinds of birds. When they meet under such circumstances, it is sure that there are some very serious and important questions to be solved. They discuss often in such furious manner that it can be heard for quite a distance, while one or two individuals sit aside in a subdued position. And as a general consequence, when the meeting is over, the corpses of one or more dead individuals are left on the spot. This is surely an indication that a furious trial and execution has taken place.

Sounds of Signs and Calls.—Many animals have adapted certain distinctive forms of sounds, uttering them at various occasions, as for calling their conjugal mate; to challenge the rival; also certain diversified sounds, as signs in cases of danger, and finally sounds of plea, when in distress, pleading for help.

The most familiar bird to all is the sparrow, and many will have observed him pleading in subdued tones for help when deep snow and a severe frost have barred the ground and prevented him from finding any food or a grain on the surface of the ground. We will find him then placed near the windows or balconies, and his pleading tones are so effective and demonstrative as to make any human soul feel pity for him and serve him a little food in the form of breadcrumbs or grains of oats, rice and similar kinds.

Moreover, if we expose some food outside of the window or balcony, after a few minutes we will witness some very intensively pathetic manifestations. Although generally the sparrow exhibits an insolent temper and a frank disposition, yet he is too timid to approach the exhibited food, although he is extremely hungry. After he has taken a glance at the food, he retires to a certain direction; then after a little time has elapsed he will return with a large group of his fellow-beings.

They all mount on different places nearby, so that they can have a convenient outlook at the exposed food. But none of them has the courage to proceed. They begin to peep in various modified tones, which apparently indicates that they have been coaxing and animating each other to make an attempt. Finally, one of

them seems to have courage enough to make an effort and proceed slowly to the exhibited rarebit, still peeping in diverse tones, which is answered by the rest, obviously coaxing and urging, or manifesting some signs that there is no danger in sight. Finally, when he arrives at the place of the food, he will test it quickly, and then hurries back to his crowd; after a little discussion he returns back to the food again, calling in the meantime the rest to come over. The crowd then proceeds also, gradually, accompanying the movements with differently scaled peeping tones, till they all have arrived at the food; and after being convinced that there is no danger to be expected from behind the windows, they will take charge of the food and begin to devour it in an unusual manner, exclaiming at intermissions some effectively suppressed tones. Then, after they have satisfied their stomachs, all will rise at the same time and fly back and mount the tops of roofs, trees or similar high objects nearby, and then commence a tremendous twittering, apparently to demonstrate their success.

Forms of Signals.—Many observers of chicken life will have noticed, when the rooster has discovered a grain or rarebit on the ground, that he will exclaim at once in a quick tempo and in high note, similar like thus: "took! took! took!" and upon this signal one or more of the hens will break off their excursions and dash for the rooster, who stands there still unmoved, pointing with his beak to the object on the ground.

There is another incident of chicken life. When the chicken crew take up their daily excursions into the fields nearby, the rooster, it will frequently be observed, will continuously spy around to detect danger. Sometimes he will decline his head a little on the side in order to have a convenient outlook to the sky, to discover the outlines of a hawk scoping for prey. And should the rooster discover his enemy way up in the sky, calmly performing his aerial circles, then the rooster will demonstrate his indignation in a very low and extended tone, similar like this: "G—u—rrr!" which is apparently a sign of alarm to call the attention of his crew that there is danger in sight; they all will stop for a moment, but then will proceed again in their search for food.

The rooster will still keep his eye on the enemy; but at the very moment the hawk is making an attempt to change the tempo of his aerial evolutions and making some suspicious motions, the

rooster will at once exclaim loudly and in a more higher tone and quicker tempo, similar like this: "Took, took, took!" alarming thereby his family to rush for their safety back to the barn, or, if too distant, to the next sheltering bush.

All these manifestations show plainly that these birds have gradually adopted certain rational forms and methods for the benefit of their mutual welfare; and the rooster, feeling instinctively (intuitively) to be the master and consequently the protector, who is morally responsible for his subjects, must exert available modes which will answer the questions of their social welfare.

Alarms, to warn the members of the colony in cases of danger, have also been observed among prairie dogs. So far as the eye is able to overlook the prairie, numbers of little hills will be observed; each is mounted by a prairie dog, solely for the purpose to overlook the place and watch for danger. And as soon as an unwelcome individual is approaching the colony, the first one who discovers the intruder will alarm the others by certain barking sounds, and upon this they all disappear into the midst of their dives and remain there till all danger is out of sight.

The various forms of cries and sounds of birds and some other organic beings, when they are uttered under the influences of meteorological changes and disturbances, may also be classified under alarm and signal cries, that is, merely of a secondary order. Although these expressions represent not a direct warning of danger, yet they seem to demonstrate strongly excited emotional effects, though the weather exerts a great influence upon the organic system, creating different pleasant and unpleasant feelings. For this reason, such animals may feel instinctively moved to demonstrate their impression to other fellow-beings, and at the same time calling the public attention to these influences and make them a matter of general contemplation.

It has been also recorded that, if the peacock continuously cries before retiring rain will be expected. The same has been observed with chickens. Loud and continuous singing of the robin during the forenoon, it is claimed, indicates rain. Peacocks and canaries become excited and noisy in the evening preceding a stormy day, and it is furthermore noticed that seismic dis-

turbances do also influence the animals and induce them to emotional exclamations.

If it is apparent that these so modified demonstrative expressions are not uttered unless there be a reason; moreover, that these so affected animals express their feelings of that prevailing pathetic condition to their surroundings, and of which they perhaps instinctively conclude to be in a corresponding condition; now, it may here be replied that in a case where such manifestations take place, where no other individuals are present to which such a demonstrating animal could address its expression, the motivity of demonstration would become questionable. But we must bear always in mind that an animal, according to the fundamental principle, to develop a sound-producing organ in order to reach related individuals by distance, even if not sighted, is logically inducted by the empirical idea to suspect a corresponding individual in the vicinity, and demonstrate its feelings and motives to that supposed fellow-being; but such cases can only be related to such condition where a bird, for instance, is doomed for confinement. But outside of this they are never really to that extent isolated to meet a correspondent upon their calls and signals.

The motive of the bird's singing is based upon this very same principle; although it often seems that such a demonstrative bird is in a solitary state, this is merely an erroneous conception and illusion. When the lark warbles her songs way up in the high sky and her emotional affection culminates in ecstasy, she empirically is inducted by the idea (instinctively) that her song has reached the suspected correspondent, whether it is a song of challenge, of rivalry, or perhaps a song of charm addressed to a female, viz., sexual mate. All other animals have no interest for her. And so it is with other singing birds—all deal with their own species.

Mr. Charles Waterton relates of those cruel fashions in Belgium and Holland, where the people used to blind chaffinches in order to increase the power and the effects of their songs. Now, in spite of their cruel treatment, the still joyous singing of these so ill-treated beings, putting forth their wild notes and sweet melodies, demonstrates that even thus so formed isolation did not interrupt them in demonstrating their emotional effects and feelings to some suspected corresponding fellow-beings, rivals or

sexual mates, as they did when they were still in the midst of their golden liberty, sitting on the nest, singing and warbling solely to beguile the incubation of their females.

The impulse of the joyous singing, to put forth such sweet melodies in order to charm their sexual mates, is a too strongly habitual, pathological manifestation that it could be extinguished by the means of isolation or any form of confinement. Its impulse is naturally analogous to the genius of a born musician, where the power to produce melodies is so determining and its tendency too impulsive to exert itself and tending to exaggerate the sublimest effects.

Expressions of Monkeys.—The best adapted forms of gestures and vocal sounds in the vertebrate kingdom will be observed among the monkeys. According to their refined anatomical and psychological constitution, which resembles mostly mankind, they are impelled to associate and form extensive colonies in order to maintain better their social and mutual welfare.

Moreover, in compliance with their delicate constitution, which logically requires also an equally refined condition of existence, the predominating idea of individualization, to maintain an ideal existence, is becoming equally more intensive and of a more rational determination; that is, the feelings representing the idea of individuality and which also constitutes emotion, are becoming more sensitive and susceptible. Their tendencies for refinement and exaltation, viz., pleasant feeling, are growing more impulsive and determined to shape an ideal existence. Subsequently, it follows the development of higher sentiment and the aversion to brute and rough influences.

These determining and intensive emotional feelings induce the individual to intellectual exertion and rationality in order to serve as means to obtain the desired ideal existence. According to this, the emotional and intellectual faculties have become most sensitive and reflexible influences of the monkey's psychological constitution. Naturally, they are the main factors inducing the monkeys to associate and form colonies, and, through mutual existence, they are capable to obtain the ideal existence which corresponds with their intellectual and pathological disposition.

The so-established colony cannot maintain its welfare without such forms which complete the modus of perfect mutual understanding. And there are again the refined and exerted intellectual and pathological faculties, by which the monkey is enabled to modify a variety of forms of signs, which indicate the prevailing motives, and to demonstrate comprehensively their principles to their fellow-beings.

Now, though the monkeys' psychological disposition implies also a variety of emotional effects and each particular effect is to be demonstrated, each effect logically requires also its particular form of significance by which it can distinctly be comprehended by the co-respondent. Hence, though the monkeys' anatomical constitution is to that extent availably constructed (analogous to man) to render the requirable variety of forms, which are necessary to signify every particular effect and motive, so has the monkey for every particular effect and motive a particular form, through which he is able to demonstrate its principles to the surrounding. That is, in other words, the monkey is capable to express his effects and motives through various forms of gestures, poses and sounds in a comprehensively demonstrative manner.

Furthermore, though each member of such a monkey colony empirically deducts from its own emotional feeling how to be treated, so feels and understands empirically every member how to treat the other in compliance with each other's individual feelings and ideas. Their instinctive feelings inducts them that to maintain the existence of their organization, which logically implies also the ideal existence of every one, they have to sustain every member which individually contributes its share to the existence of the colony.

Hence, they have to take care that no member will become perished and lost; moreover, they respect and appreciate each other's individuality as their own; that is, in other words, they have instinctively objectively established the primeval form and principles of sociology.

Their mutual interest and pathological feelings for each other may best be illustrated in the following example: A hunter killed a female monkey; by the act of carrying it away he was followed up and pursued by a large number of the colony, but according to an effective gun-shot, they retreated to their distant places,

except an old male remained there and began to howl and to cry, and bursting out in the most intensive pathological exclamation, so that the hunter felt pity for him and returned to him the dead corpse of the victim. The old male seized it at once and hurried away back to the visiting crowd, and they all disappeared after this in the midst of the woods.

Moreover, according to their delicate and refined situation which they take up in the organic world, and also their communal relation, which has impelled them to develop available forms of expression to communicate with each other in order to effect a mutual understanding, they have, at the same time, in correlation with the refinement of their feelings and ideas, also instinctively been tending to develop certain forms and modes by which they are able to demonstrate and express to each other reverence and further acts of courtesy and politeness. This has been frequently noticed in monkeys when it concerns family affairs. Kissing seems to be in monkey families also an important manifestation of courtesy. A well-known naturalist relates of a baboon mother, who gave birth to a young one: Her male fiance came over to visit her; other males came, too; finally every male baboon kissed the baboon mother; then the rest of all the males confronted her, moving their lips, which did look like a polite conversation.

Very peculiar are their modes of salutes. According to Fisher, the most important form of salutes to demonstrate reverence is that the visitor exhibits his hind part to the party he is visiting; this party, in order to repay the same and complete this act of reverence, has to scratch the exposed hind part of the visitor; neglecting this act would be considered as a grave insult.

CHAPTER X.

MISCELLANEOUS FORMS AND CONCLUSION.

In resuming the functions of expression, as illustrated in preceding chapters, which are solely adapted for the service of intercommunication and understanding, I shall, in this chapter, refer to some other forms of similar manifestations and, therefore, very much related to the subject.

Through all chapters I have been tending to demonstrate

that the fundamental basis of animal intercommunication and their mutual understanding lies within the psychological constitution, that is to say, that the dominating faculties of the soul, intellectually and pathetically, essentially constitute the means of intercourse and expression. According to the laws of life, all organic beings are instinctively subjected to the prevailing strong aversion against influences annoying their individual. Moreover, the natural tendency of most every animal is, in order to improve the welfare of its ideal existence, to maintain a symmetrical connection, with which it is impelled to share existence, as, for instance, in confinement. The symmetrical manifestation to each other indicates logically: benevolence; therefore many animals enter easily and subjectively the conditions of friendship for the benefit of mutual welfare; and even if both represent individuals of extremely different species.

Thus so formed friendship remains generally unbroken during lifetime. Moreover, such allied heterogeneous individuals confer and understand each other harmoniously, although their respective modes of demonstrative expression, as gestures, sounds or poses, render very little service to each other and, therefore, they are dependent on the ground of telepathetical intercourse. Such manifestations, which frequently take place and which daily can be observed, are a further proof that the understanding among animals is essentially based on the psychological ground and that the fundamental forms of understanding originate from the pathetical system of the individual and the centre of its subconsciousness within.

As a very remarkable manifestation of telepathetical understanding of an animal, I shall relate the following case. Mr. Spelatus possessed a very loyal dog. Whenever he traveled from home to Spelato, he left his dog at home. During all this time the dog exhibited sadness and emotional depression and rejected food. But a short time before his master was on his way home, he became aroused and restless, and when the door was opened he ran away and then shortly after he returned home with his master.

Another similar case. Mr. G. owned a blackbird which he had trained to sing some melodies. He presented this bird to his sister living several miles away. But every time when G.

was on the way to visit his sister, the bird manifested some excitement and stopped singing. But as soon as the same entered the door, the bird calmed down and commenced singing again; this manifestation could repeatedly be observed.

Now, it may be obvious that an understanding, solely by thought transference, could not be acquired, because it seems to be doubtful that these animals were really capable of reasoning intuitively from the objective thought forms of their respective masters, that is, to perceive visually the forms of the thoughts. But it seems more apparent, that where reasoning intuitively and pathetically from the pathological motive (intention) that is, reasoning from the effects of the tendency of approaching sympathetical influence, combined with the projective influence of the will by their respective sympathetically allied masters.

I shall allude to another extraordinary case, where individuals of very extreme distinct species formed a very strong affected alliance. Mr. Hartmut relates his experiment in the "Intern. Thiermarkt" as follows: He obtained a couple of valuable Chinese ducks which he placed in a large and extended yard, fenced in by a high stone wall and containing a very suitable swimming pool.

In this place he kept also a newly captured young fox, chained to his hut. Several days after the arrival of the ducks, Mr. Hartmut made the strange discovery that the ducks were keeping themselves closely by the fox, which did not exhibit any excitement nor made any attempt to assail the ducks. The following day the ducks were found resting close by the hut, side by side with the fox, all indulging the warm and animating rays of the sun. Moreover, this alliance became gradually more intensive and, finally, as the fox was released from his chains, they all were frequently strolling around the place, and when the ducks entered the pool, the fox ran around that pool anxiously and full of fear that they might be harmed. And as then, furthermore, the ducks had produced some offsprings, the fox also devoted his undivided care to them and endeavored to accommodate them in every possible manner.

Another case of alliance, analogous to this, was exhibited by Mr. Bostock in his menagerie at Coney Island some time ago.

A lion and a lamb were confined in the same cage, and it could plainly be observed how the lion frequently and affectionately paid its devotion to his little friend, which took all these demonstrations calmly and well contended, as if it were treated by his mother.

Concluding from the nature of these alliances, manifested in the last two cases, it is apparent that the carnivorous instincts or impulses must have lost much of its objectivity and intensity on account of the sufficiently supplied food which they received in their confinement and which did substitute for the prey which they had to hunt for when living in the forest and wilderness.

The pursue of prey implies a certain feeling of charm, which logically increases and intensifies the brute aspirations, and which also becomes more intensified by the scarcity of prey; naturally, this tendency exaggerated in the feline family merely into brute lust and bloodthirst, though more easier in the canine family.

Now, in their confinement, these animals, the lion and the fox, had not the opportunity which would stimulate their carnivorous and brute tendencies and, naturally, to indulge any further in such transactions, they would render no charm and stimulations to brute manifestations, because their appetites were satisfied by the rational treatment they received by their respective masters. Hence, they subjected and yielded to the feelings of easiness, the same as all animals, after being satisfied, generally indulge in repose and idleness.

Moreover, it is owing to the laws of psychology that all organic beings subjectively tend to obtain the presence of another being in order to confer and to exchange their feelings and motives, respectively, to indulge in the reflexion of their individuality. This is a tendency to form a sympathetic union or friendship. The aspiration is becoming, in cases of confinement, naturally more determined and affectionate; this is especially the case where such confined beings are strictly excluded from the outer world.

Thus so allied individuals can be representatives of the extremest organic orders and still they are susceptible to form a sympathetical union, which really will answer the question of mutual welfare of their respective ideal existence. The lone man prisoner, as history relates, may form a close friendship

with an insect sharing the space of his cell, and which afterwards may culminate in intensive mutual pathological affections. Such two united organic beings respect and honor each other's personality; and deducting from the feelings and desires of their own being, they thereby understand what is due to each other. Hence, the so constructed sympathetical affection stimulates each individual to exercise efforts to render mutual benevolence.

This is plainly demonstrated in the two above-illustrated cases. The lamb and the ducks must have apparently been inducted by their own intuition and pathological perceptibility, that the affections of their respective co-respondents were to them of sympathetical and benevolent character; hence, reasoning from their instinctive feelings, they subjected and yielded to the influences of their friends, the lion and the fox.

The alliances which have been sympathetically formed under such conditions will grow gradually more and more intensive, as then these manifestations are also subject to the laws of habits. The bands which bind them sympathetically will seldom give way, even if these animals have been given their liberty, and as this has been frequently demonstrated, they retain their friendship during their lifetime, till death breaks these ideal chains of real friendship.

Conclusion.—In resuming these foregoing illustrated manifestations of the intercourse in the animal world, on this place, it is done merely for the purpose to avoid liable erroneous conclusions and false conceptions, which might be created by the tendency of this work, which bases the principles of animal understanding and the fundamental basis of intercourse expressively on the psychological ground.

Therefore, it shall here be pointed out and be remarked once more that the relation of psychological intercourse is a form of communication upon which mainly the lower classes of organic life are depending; that is, all those simple-formed organic beings whose organic structure is not fitted nor able to modify and adopt forms of communication through which an harmonious understanding and intercourse could be gained. I shall allude, for instance, to certain germs in the lower organic world, as protozoa, moluscles, vermes and other similar individuals. But, ascending the stages of organic evolution, where

the anatomical structure (bodily organs) is becoming more complicatively organized and where the sensational and cerebral organism is equally perfected, the organic beings are thereby enabled to develop forms of intercourse of more demonstrative nature; that is, using the physical structure by exhibiting certain modified motions and actions which indicate each one particularly the principles of prevailing motives and effects.

Thus modified actions substitute to a certain degree the functions of the psychological intercourse, but still in an imperfect way. Animals of these orders exhibit gestures and poses in their primitivest forms, signifying merely the main emotional affects, such as love and anger.

Furthermore, coming up to a more superior group of organic beings, whose physical constitution is more perfected and avaiably organized. Hence, according to this and owing to their higher grade of intellect, they are thereby enabled to adapt more available forms of demonstration of more expressive character; and that is, where the forms of gestures and sounds are more distinctly modified and also verified. This can be observed by individuals of the lower classes of the vertebrate kingdom and, furthermore, by the majority of insects. The relation of intercourse depends here rather half-way on physical forms, as gestures and sounds, and halfways on the psychological forms, that is, telepathy and thought transference.

Next we arrive to the superior classes in the vertebrate kingdom, where the individuals are physically better formed and where the cerebral power is also higher developed. Subsequently, according to their more positive mental powers and well-adapted forms of gestures and modified sounds, the manifestations of psychological intercourse are becoming merely forms of a more inferior order, because the physical forms of demonstration are here the main factors.

Naturally, this is to say that during the progress of individual evolution, physically and mentally, the faculty of thought transference receives thereby a secondary character; that is, its power has been gradually converted into a state of passive efficiency which has lost, owing to the lack of exercise, much of its objective and impressive actuality.

But nevertheless the telepathetical susceptibility and impressibility still remains in existence also in the superior orders of the vertebrate kingdom, although in a more passive and negative state, but also to that extent of efficiency that those individuals are enabled to reason from the impressions of prevailing telepathetical influences, emanating from certain corresponding related beings, and then act according to it.

Now, in overlooking the whole relation of thus illustrated animal intercourse, we will observe that that part of the organic world where the individuals are enabled to communicate by means of gestures and sounds, is very small and restricted in proportion to the rest of the organic kingdom, which is, owing to the anatomical simplicity of the physical constitution, impelled to communicate on the psychological basis, that is, thought transference.

Hence, in relation to the larger number of individuals, which represent in this case the majority of the animal kingdom, and furthermore though this majority represents also at the same time the primary stages of organic life, these psychological forms of intercourse, telepathy and thought transference, are the dominant factors in the movement of the animal personal intercourse, and especially in the extended lower part of the organic world.

Therefore, the theory of thought transference and telepathy, delineated on this place, refers on the first hand mainly to the inferior part of the animal kingdom, and on the second hand to the superior part of the organic world, where the practical efficiency of gestures and modified sounds substitute more or less the forms of psychological intercourse.

For this reason I must state here again that all those organic beings, which are physically not adapted to develop any form or sign to demonstrate a prevailing affect or motive, whether through any rude form or gesture, pose or sound, are naturally compelled to exert their psychological faculties in order to serve as means for intercommunication, that is, the transmission of ideas and feelings, whereby they obtain a perfect mutual understanding to acquire thereby the benefit of their respective welfare with the same result as language does to man.

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